

Introduction

A Guide to Better Site Planning

This guide represents the culmination of a four-year effort to examine new ways to reduce pollutant loads and protect aquatic resources through non-structural practices and improved construction site planning. During the project it was quickly realized that a fundamentally different approach toward development was needed to reliably protect streams and other aquatic resources. This guide describes a new approach to site planning and recommends how it can be implemented at the local level. A recurring theme is that the new site planning approach makes more environmental and economic sense than traditional subdivision codes.

This guide is aimed at all those who participate in site planning at the local level—plan reviewers, developers, engineers, landscape architects, local officials, and concerned citizens. It is hoped that each participant can find some useful ideas within the guide to improve the quality and outcomes of site plans.

Organization

The guide is organized into seven main chapters:

1. A Stream Protection Strategy
2. The Importance of Imperviousness
3. Watershed-Based Zoning
4. Stream Protection Clusters
5. The Architecture of Stream Buffers
6. Headwater Streets
7. Green Parking Lots

The first chapter, *A Stream Protection Strategy*, outlines a comprehensive framework for effective stream protection at the local level that utilizes an integrated development review process through each stage of the development cycle. The many advantages of this resource-driven approach are then described. Next, the chapter documents how three decades of traditional development standards and subdivision codes have not served their purpose. These outdated regulations result in needless impervious area, consumption of green space, and inadequate protection of resource areas and streams. A strong case is made that modest reforms of inflexible local development regulations can produce significant improvements in the future quality of streams and the community.

Chapter 2, *The Importance of Imperviousness*, is a thorough review of natural research on the impact of imperviousness on aquatic systems. The review concludes that even relatively low levels of impervious cover can produce significant and often irreversible impacts on streams and other aquatic resources. A key theme is that impervious cover can be used as a quantitative measure to test the effectiveness of site planning practices.

Chapter 3, *Watershed-Based Zoning*, examines how the measurement of impervious cover can be a more reliable and enforceable link between individual site plans and the larger watershed in which they are built. An urban

stream classification scheme based on future impervious cover is outlined and the merits of impervious cover are then discussed as the basis for watershed-based zoning. The chapter outlines the steps needed to institute watershed-based zoning at the local level and concludes with a discussion on how specific stream protection strategies can be adapted within individual subwatersheds.

Chapter 4, *Stream Protection Clusters*, examines a series of alternative development patterns that can sharply reduce the amount of impervious cover created at a site. These development patterns concentrate on cluster development in a smaller area served by a shorter road network. Many localities already allow cluster development; however, it has seldom been used for the explicit purpose of reducing impervious area. A new model for cluster development is presented that can be easily implemented by local governments to build more attractive and economic communities.

Chapter 5, *The Architecture of Stream Buffers*, documents the critical importance of buffers in the urban landscape. Twenty key benefits of buffers are reviewed. In addition, the chapter documents the experience that local governments have had in implementing effective stream buffer programs. The chapter concludes with detailed, but flexible performance standards that ensure that buffers are protected and maintained through each stage of the development cycle.

Chapter 6, *Headwater Streets*, investigates the potential of reducing imperviousness through narrower residential streets, smaller

cul-de-sacs, and shorter driveways. Present local road design standards have resulted in needless impervious cover and unsafe speeds. A revised residential street classification system is presented that forms the basis for more effective performance standards for street design. The chapter also provides guidance on integrating structural practices along streets to provide the most effective control of runoff quality.

In the last chapter, *Green Parking Lots*, further reduction of impervious cover is possible in new commercial parking lot design. The “green parking” approach downsizes parking areas, thus limiting the creation of unnecessary impervious cover while still providing convenient access for motorists. A strong case is made that current local parking codes result in parking lots that are much larger than needed. From the experience of local planners, new performance criteria are proposed to curb excess parking, utilize smaller parking stalls, and design more effective best management practices (BMPs) for parking lots.

A glossary at the end of the guide provides definitions of the many planning and engineering terms involved in site planning.

The guide illustrates how innovative site planning tools can be integrated into the overall BMP system for a development site. Such tools act to reduce impervious area, protect resource protection areas, and retain

green space. Most importantly, the guide makes a strong case that when these tools are applied together, the result is generally better for the community, the stream and the

developer.

Many of the issues in this manual are explored in greater depth in a series of four guidance documents that are available from MWCOG.

- < Riparian Buffer Strategies for Urban Watersheds
- < Cluster Development Strategies for Urban Watersheds
- < Residential Street Strategies for Urban Watersheds
- < Clearing and Grading Strategies for Urban Watersheds

Author's Note

The purpose of this guide is to present a new way of thinking about site planning to better protect streams. As a result, the guide is peppered with many numerical examples of new performance criteria. While these new criteria are thought to be an improvement over existing subdivision codes and standards, it is important to carefully and critically evaluate each one within the context and character of the existing community or region. After all, it has been the uncritical acceptance of design standards in the past that has often led to many present stream protection problems.

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Points of view expressed in this guide do not necessarily reflect the views or policies of the EPA or MWCOG.

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That Contributed To This Study**

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Alaska Coastal Zone Program
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